Docket No.: 1615.1019

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of:

Maxwell WELLS et al.

Serial No. 09/556,086 Group Art Unit: 2128

Confirmation No. 7449

Filed: April 21, 2000 Examiner: Fred O. Ferris III

For: MUSIC SEARCHING METHODS BASED ON HUMAN PERCEPTION

REPLY BRIEF

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

This is in response to the Examiner's Answer mailed June 25, 2007 and having a reply due on August 25, 2007.

Summary of Claimed Subject Matter

In the Examiner's Answer, it was stated that the Appeal Brief filed February 7, 2007 contained a Summary of Claimed Subject Matter that included a "mapping [which] appears to offer an interpretation of certain limitations that is more specific than the claims actually require" (Examiner's Answer, page 3, last 3 lines) without providing any explanation of how the Summary of Claimed Subject Matter interpreted the claims more narrowly than required.

As required by 37 C.F.R. § 41.37(c)(1)(v), the Summary of Claimed Subject Matter "shall refer to the specification by page and line number and to the drawing … by reference characters" in providing "a concise explanation of the subject matter defined in each of the independent claims involved in the appeal". It is submitted that that is all that was provided by the Summary of Claimed Subject Matter section of the Appeal Brief. For example, in explaining the relationship between "extracting from each of at least 5 electronic representations of musical recordings at least two numeric parameters" (claim 1, lines 3-4) and the detailed description of the preferred embodiments in the specification, the Appeal Brief noted that "[d]efinitions of thirteen parameters

that can be extracted from musical recordings are provided on pages 15-17 of the application" and that "[p]arameter extractors 102, 204, 303 and 402 are illustrated in Figs. 1-4 and described on page 6, lines 30-32 ; page 7, lines 6-7; page 8, lines 7-10; and page 18, lines 26-27." This statement does not mean that claim 1 should be interpreted as including all thirteen parameters listed on pages 15-17, but merely that the specification discloses the extraction of more than one parameter that meets the limitations recited on lines 3-4 of claim 1.

Grounds of Rejection

Pages 4-11 of the Examiner's Answer contain an expansion of the Grounds of Rejection on pages 7-10 of the July 7, 2006 Office Action. On pages 4-5 of the Examiner's Answer, the Examiner added a summarization of the claimed subject matter that (unlike the Summary of Claimed Subject Matter section of the Appeal Brief) did not quote or cite any of the claim limitations and instead cited the specification of the application. As a result, it is submitted that the paragraphs on pages 4 and 5 of the Examiner's Answer are an improper analysis of the claims, because there are no "means-plus-function" limitations recited in any of the claims and the rejection does not contain any other basis for interpreting the claims in light of the specification in the manner used on pages 4 and 5 of the Examiner's Answer.[1]

Examiner's Assertions about Martin et al.

In item (1) on page 6 of the Examiner's Answer, the article entitled "Music Content Analysis through Models of Audition" by Martin et al. (Reference U in the January 18, 2006 Office Action) was described as

> a research paper that conceptually proposes computer modeling in a musical multimedia system using human listener input to perform such tasks as … identify music genre, find similarities between pieces of music, identify musical parameters such as tempo and rhythm, and classifying music into categories

(Examiner's Answer, page 6, lines 3-7), citing paragraph 2 on page 7 of Martin et al. Furthermore, it was asserted that Martin et al. "introduces the concepts of using the 'direct

[1] See, e.g., *DePuy Spine Inc. v. Medtronic Sofamor Danek Inc.*, 469 F3d 1005, 80 USPQ2d 1865, 1878 (Fed. Cir. 2006) and the following cases cited therein, "'Means-plus-function claiming applies only to purely functional limitations that do not provide the structure that performs the recited function.' Phillips, 415 F.3d at 1311 [*Phillips v. AWH Corp.*, 415 F.3d 1303 75 USPQ2d 1321 (Fed. Cir. 2005) (en banc)] (citing Watts v. XL Sys. Inc., 232 F.3d 877, 880-81 [56 USPQ2d 1836] (Fed. Cir. 2000)). '[A] claim term that does not use 'means' will trigger the rebuttable presumption that [35 U.S.C.] § 112 ¶ 6 does not apply.' CCS Fitness v. Brunswick Corp, 288 F.3d 1359, 1369 [62 USPQ2d 1658] (Fed. Cir. 2002). This presumption can be rebutted 'by showing that the claim element recite[s] a function without reciting sufficient structure for performing that function.' Watts, 232 F.3d at 880. 'Our cases make clear, however, that the presumption flowing from the absence of the term 'means' is a strong one that is not readily overcome.' Lighting World, Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1358 [72 USPQ2d 1344] (Fed. Cir. 2004).'"

perception' of human listeners into a computational model" (Examiner's Answer, page 6, lines 7-9) somewhere on page 5 of Martin et al. and introduces "the concept of multimedia databases being accessed based on human perceptions of music" (Examiner's Answer, page 6, lines 9-10) in the first paragraph on page 2 of Martin et al.

As set forth in the Appeal Brief and the Response filed April 18, 2006 (received by the U.S. Patent and Trademark Office on April 21, 2006) in response to the Office Action mailed January 18, 2006, it is Appellants' position that the Examiner has gotten more out of Martin et al. than a person of ordinary skill would have on April 21, 2000 when the subject application was filed. The portions of Martin et al. relied on as supporting the statements quoted above contain only a very high-level summary the prior art and describe what human listeners can say about music that cannot be output from a computer model. These statements clearly indicate that the authors were not in possession of a conceptual or computer model capable of doing what is recited in the claims. Each of the portions of Martin et al. cited in the Grounds of Rejection section of the Examiner's Answer is discussed in more detail below.

Appellants have assumed that the reference to "page 2, para:1" of Martin et al. refers to lines 2-6 on page 2 of Martin et al. which contain the following sentences:

> Interaction with large databases of musical multimedia could be made simpler by annotating audio data with information that is useful for search and retrieval, by labeling salient events and by identifying sound sources in the recordings (Wold *et al.* 1996; Foote in press). The computer might understand naturally expressed queries by a user and use automatic segmentation to return only those parts of the database that are of interest to the user.

Nothing in this paragraph appears to teach or suggest "the concept of multimedia databases being accessed based on human perceptions of music" as asserted by the Examiner. The "labeling [of] salient events and … identifying sound sources in the recordings" does not suggest use of "human perceptions of music" and "naturally expressed queries" appears to be a reference to the syntax of queries rather than a suggestion that the queries contain a description of "human perceptions of music," given that submitting queries in "natural language" was a goal of many systems in 1998 when Martin et al. was published.

Appellants have assumed that the notation "para:4, 9" (page 6, line 9 of the Examiner's Answer) used to identify what is being cited on page 5 of Martin et al. refers to lines 11-17 and 43-45 on page 5 of Martin et al. which contain the following sentences:

> We have constructed several systems that can accurately determine tempo and locate the beat in musical signals of arbitrary polyphonic complexity and containing arbitrary timbres (Scheirer 1997; Vercoe 1997; Scheirer 1998). The analysis

> is performed causally, online, and in real-time, and can be used predictively to guess when beats will occur in the future. We engaged in extensive analysis and verification of the second system, demonstrating its performance on a wide variety of musical samples and comparing it to the performance of human listeners in a short validation experiment. Real music, taken directly from FM radio, was used to validate this system and compare its performance to that of human listeners.

and

> The conclusion is not only that it is *possible* to incorporate a "direct perception" musical model and build a perceptually-motivated framework into beat-tracking systems, but that doing so results in a system which is *better* than other such systems reported in the literature.

Unlike what the Examiner cited on page 2 of Martin et al., the cited portions on page 5 of Martin et al. do state that what the authors created relates to human perception of music, since it included "a perceptually-motivated framework in … beat-tracking systems" that was "used predictively to guess when beats will occur in the future." However, there is no suggestion in the paragraphs quoted above from page 5 of Martin et al. that "a perceptually-motivated … beat-tracking system" was used in identifying music. The retrieval systems mentioned in the paragraph quoted above from page 2 of Martin et al. are just some of the "many useful applications" (Martin et al., page 2, line 1) and nothing was cited or found in Martin et al. suggesting that the beat-tracking system described on page 5 of Martin et al. should be used in a music database retrieval system nor was any suggestion cited or found in Martin et al. of how it might be possible to do so.

Finally, Appellants have assumed that the reference to "page 7, para:2" of Martin et al. refers to lines 7-15 on page 7 of Martin et al. which contain the following sentences:

> While such scenarios are not typically considered in music-psychology studies or experiments, it is clear that the listener can say many interesting things about the music that are beyond our current ability to model. The listener will be able to identify the genre of the music, discuss what other pieces or kinds of music it bears similarity to, have an emotional reaction to the music, perhaps identify the instruments in the music, perhaps sing back a certain voice in the music, verbalize a "sketch" of the music, perhaps identify the composer or performer, clap along with rhythms in the music, classify the music as "simple" or "complicated," identify social scenarios in which the music is appropriate or inappropriate, make claims about the emotive intent of the composer or performer, think of other people who might like the music, and so on.

As stated in this paragraph, this is a list of what the authors **had not** been able to make a computer do, but human listeners can say about music. At most, it is a list of desired or "sought" capabilities that to the knowledge of the authors were not provided by the prior art. There is nothing in Martin et al. which suggests how it might be possible to perform "computer modeling

in a musical multimedia system using human listener input to perform … tasks" (Examiner's Answer, page 6, lines 4-5) like as those listed in the paragraph quoted above from page 7 of Martin et al.

Examiner's Assertions about Blum et al.

Among other assertions about U.S. Patent No. 5,918,223 to Blum et al. (Reference A in the June 17, 2004 Office Action), item (2) on page 6 of the Examiner's Answer asserted that column 18, lines 20-45 and column 14, lines 40-49 of Blum et al. taught "statistical weighting of audio waveform sample (sic) (recorded) parameters to normalize sampled values of musical parameters" (Examiner's Answer, page 6, lines 20-21). Even if this is an accurate statement, it is not particularly relevant to the issues on appeal. As set forth in the discussion of "Issue (4)" on pages 16-18 of the Appeal Brief and in the April 18, 2006 Response and the November 17, 2004 Amendment, nothing has been cited or found in Blum et al. that teaches or suggests producing a "descriptor for each recording most closely match[ing] perceptions reported for the recording by one or more human listeners" (claim 1, last 2 lines) or "to find a set of weightings where each computed descriptor for each recording most closely matches perceptions reported for the recording by one or more human listeners" (e.g., claim 1, last 3 lines). Rather, Blum et al. discloses a program that creates weightings according to a formula that does not take into account "perceptions reported for the recording by one or more human listeners."

Modifications to the Rejection in the July 7, 2006 Office Action

1. Note/Observation on Pages 7-8

On the last two lines of page 7 and first nine lines on page 8 of the Examiner's Answer, a "note/observation" of the Examiner was added citing what was disclosed in the specification. As discussed above, since there are no means-plus-function claims included in the amended claims, the discussion of the specification of the application is not relevant to the issues on appeal.

The "note/observation" on pages 7-8 of the Examiner's Answer repeated the assertion initially made on page 6 of the Examiner's Answer that Martin et al. disclosed "the concept of multimedia databases being accessed based on human perceptions of music (page 2, para:1), e.g. searching a database with descriptors similar to matches reported by human listeners" (Examiner's Answer, page 8, lines 2-4). As discussed above, that is not what is described in the first paragraph on page 2 of Martin et al. As also discussed above, the list of tasks that "a human listener can perform" (Examiner's Answer, page 8, lines 4-5) on lines 5-6 of page 8 in the

Examiner's Answer is not relevant to what is disclosed by Martin et al., because none of these tasks are used or simulated by what was disclosed in Martin et al. Rather, they are a list of what the authors of Martin et al. (and any prior art known to them) could not accomplish using a computer.

The last sentence of the "note/observation" on pages 7-8 of the Examiner's Answer cited the specification of the subject application which, as noted above, is not relevant to the issues on appeal. Issue (1) set forth on page 10 of the Appeal Brief was "[w]hether Martin et al. 'teaches [a] method for building a computational model of human perception of music'" as asserted in the final Office Action. The reference to what is taught by "McCullagh and Nelder" in the sentence on lines 7-9 of 8 in the Examiner's Answer is an apparent admission of the lack of teaching in Martin et al. of "a computational model of human perception of a descriptor of music" as recited in claim 1. Regardless of whether other references could have been cited that disclose what the Examiner has apparently admitted that Martin et al. does not, the combination of these references with Martin et al. would not overcome the deficiencies of Martin et al. set forth in the Appeal Brief, because nothing has been cited in Martin et al. or anywhere else in the prior art suggesting modification of Martin et al. to produce "a computational model of human perception of a descriptor of music" as recited in claim 1.

2. Citation of Abstract and column 3 of Blum et al. on Pages 8-9

The next significant addition to the rejections as set forth in the July 7, 2006 Office Action was the assertion that Blum et al. discloses "finding a set of numeric values (vectors, e.g a numerical discriptor (sic)) to classify the similarity between audio files (e.g. songs) in a database (abstract), and a computed distance (difference) between audio files (CL3-L35-67)" (page 8, line 21 to page 9, line 2). This was apparently added in response to the arguments regarding Issue (5) in the Appeal Brief, "[w]hat in the cited prior art teaches or suggests 'assembling the computed difference numbers into a database where each computed difference is associated with the identifier for each of the two recordings from which the difference was computed'" as recited on the last three lines of claim 18.

The Abstract of Blum et al. states that Blum et al. discloses a "system that performs analysis and comparison of audio data files based upon the content of the data files" where the "analysis of the audio data produces a set of numeric values (a feature vector) that can be used to classify and rank the similarity between individual audio files … stored in a multimedia data-base" and "facilitates the description of user-defined classes of audio files, based on an analysis of a set of audio files that are members of a user-defined class." The newly cited portion of

column 3 in Blum et al. is part of the Summary of the Invention Section of Blum et al. and thus, provides only a high-level description of what Blum et al. discloses about "search[ing] the sound database by four specific methods … [that] result … [in] a list of sound files rank-ordered by distance from the specified N-vector, which corresponds to sound files which are most similar to the specified N-vector" (column 3, apparently lines 35-40, but actually lines 32-37). The portion of Blum et al. that Appellants believe provide the detailed disclosure of how the system disclosed by Blum et al. calculates the distance between sound files was discussed in detail in the Appeal Brief. It is submitted that the portion of column 3 in Blum et al. added to the rejection of the claims in the Examiner's Answer does not rebut the arguments made regarding Issue (5) on pages 18-19 of the Appeal Brief.

3. Citation of "page2, para:1" in Martin et al. on Page 10

On the last four lines of page 10, the Examiner's Amendment modified the rejection as set forth in the July 7, 2006 Office Action by replacing "As noted above" with

> Martin also at least conceptually teaches multimedia databases being accessed based on human perceptions of music (page 2, para:1), e.g. searching a database with descriptors similar to matches reported by human listeners. Hence, using the same motivational reasoning set forth above

As discussed above, this statement is a mischaracterization of what is stated in the first paragraph on page 2 of Martin et al. All that Appellants can find in this paragraph is the "labeling [of] salient events and … identifying sound sources in the recordings" and the use of natural language queries and these teachings fail to suggest even "conceptually teach[ing] multimedia databases being accessed based on human perceptions of music" as asserted on the last four lines of page 10 in the Examiner's Answer.

Response to Argument

On pages 11-18 of the Examiner's Answer is a Response to Argument[s] in the Appeal Brief. This Response starts with an oversimplification of the issues, i.e., "[i]n a nutshell" (Examiner's Answer, page 11, line 19). The Examiner asserted that "Appellants have simply failed to embrace the teachings of the prior art references in their entirety, and have instead focused their arguments on features in the prior art that are[e] not related to this fundamental concept." On the contrary, Appellants maintain that the Examiner has found a "fundamental concept" that is not disclosed in the prior art and would not have been obvious to one of ordinary skill in the art from the references that have been cited, but rather is apparent to the Examiner

only from reading the subject application. In other words, the Examiner's interpretation of the prior art is colored by the impermissible use of hindsight.

Issue (1)

With respect to Issue (1) of the Appeal Brief, the Examiner asserted that "the combination of Martin and Blum" (Examiner's Answer, page 12, line 7) "teach[es] a 'method for building a computational model of human perception of music' as recited in claim 1" (Examiner's Answer, page 12, lines 5-6). First, it is noted that is impossible. Individual references "teach" and then one of ordinary skill in the art might find claims obvious by combining their teachings. Secondly, the Appeal Brief addressed what Martin et al. taught with regard to "a computational model of human perception of music" because it was (and still is) Martin et al. that the Examiner has relied on as teaching such a model.

As discussed above and in the Appeal Brief, what the Examiner has cited in Martin et al. does not support the rejection. The addition of Blum et al. does not overcome the deficiencies of Martin et al., because Blum et al. does not disclose storing "weightings where each computed descriptor for each recording most closely matches perceptions reported for the recording by one or more human listeners" (claim 1, last 3 lines). Instead, Blum et al. discloses storing in a database "the mean and standard deviation" (column 3, lines 14-15) of the following specific features: "loudness, bass, pitch, brightness, bandwidth, and Mel-frequency cepstral coefficients" (column 3, lines 7-8), where "which acoustical features to measure is critical to the success of the invention" (column 3, lines 5-6). Thus, Blum et al. teaches away from storing any other kind of information and what is recited as being stored in claim 1 is patentably distinct from the statistically processed features taught by Blum et al.

The response to arguments in the last paragraph on page 12 of the Examiner's Answer was addressed above. As repeatedly explained by the Appellants, page 7 of Martin et al. does not describe what the authors of Martin et al. developed, but rather what they did not develop. It is submitted that one of ordinary skill in the art in 2000 upon reading page 7 of Martin et al. would at most have been motivated to try an almost infinite number of possible ways of accomplishing what the authors of Martin et al. admitted they had not accomplished in 1998. There is insufficient guidance in the combination of Martin et al. and Blum et al. to teach or suggest to one of ordinary skill in the art how to accomplish what the Appellants disclose in the specification of the subject application and have claimed in the appealed claims.

The first paragraph on page 13 of the Examiner's Answer again cited the specification of the subject application. As discussed above, that is improper in determining the scope of the appealed claims which does not include any means-plus-function claims.

Furthermore, most of the text on page 13 of the Examiner's Answer is not a response to arguments made with respect to Issue (1) of the Appeal Brief, but rather a repetition of the rejection. Only the last three lines on page 13 begin to address what Martin et al. teaches with respect to "building a computational model of human perception of music" as recited in claim 1. These lines start by another inaccurate citation of page 7 in Martin et al. and follow by citing "'statistical equivalency'" in paragraphs 7 and 8 on page 4. Assuming that what is being cited in lines 24-33 of page 4, these paragraphs refer to "the emergence of a perceptual focus" (page 4, line 25), but then explain that this refers to "a system that could listen to a radio … and … classify the signal as 'speech' or 'music'" (page 4, lines 26-27), not one that does anything like what is recited in the claims.

The first full paragraph on page 14 of the Examiner's Answer discussed "'statistical classifiers' as noted above" (page 14, line 6). What was cited on page 13 of the Examiner's Answer as "statistical classifiers" was paragraph 4 on page 7 of Martin et al. However, as noted repeatedly by Appellants, lines 23-26 on page 7 of Martin et al. is a description of what the authors "will build" (page 7, line 23). Thus, at most this paragraph would suggest to one of ordinary skill in the art that what the Appellants developed would be desirable, not how anyone, including the authors of Martin et al. might go about developing such a system. Therefore, it is submitted that the arguments regarding Issue (1) were not overcome by the Examiner's Answer.

Issue (2)

In response to the arguments regarding Issue (2) of the Appeal Brief, the Examiner's Answer noted that the claims did not specifically claim "the ability to detect genre" (Examiner's Answer, page 14, line 20, emphasis deleted). That is because the Appeal Brief discussed "genre" in regard to the teachings in Martin et al., not in regard to a claim limitation. The last line of the first paragraph addressing Issue (2) in the Appeal Brief notes an "ability of the present invention to detect genre" that results from what is recited in the claims, e.g., by storing descriptors for recordings, where "each computed descriptor for each recording most closely matches perceptions reported for the recording by one or more human listeners" (claim 3, last 2 lines), it is possible to detect genre which as noted by Martin et al. is something "that the listener can say … about .. music that … [is] beyond our current ability to model" (page 7, lines 8-9). Contrary to the assertion at page 15, lines 2-5 of the Examiner's Answer, Martin et al. does not

suggest a system that stores descriptors as recited in claim 3 (for example). Rather, as repeatedly explained by Appellants, the cited portion of Martin et al. describes what the authors of Martin et al. did not know how to accomplish and encouraged others (and themselves in future work) to attempt to do. Appellants found a way to accomplish what Martin et al. suggested attempting and the way that is accomplished is recited in the claims using limitations that are not obvious from what was taught by Martin et al. and Blum et al. Therefore, it is submitted that the arguments regarding Issue (2) were not overcome by the Examiner's Answer.

Issue (3)

The first full paragraph on page 15 of the Examiner's Answer addressed the arguments in the Appeal Brief regarding lack of motivation to combine Martin et al. and Blum et al. However, nothing in this paragraph overcomes the explicit teachings in Blum et al. to not use different features. The mere existence of some similar words in Martin et al. and Blum et al. are not enough to provide a suggestion to combine to one of ordinary skill in the art when the references are taken as a whole. Therefore, it is submitted that the arguments regarding Issue (3) were not overcome by the Examiner's Answer.

Issue (4)

The first full paragraph on page 16 of the Examiner's Answer addressed the arguments in the Appeal Brief regarding whether Martin et al. and Blum et al. disclose all the limitations recited in claims 1, 3, 5, 6 and 10. In this response, the Examiner again indicated that the rejection in the July 7, 2006 Office Action had been modified to add what was taught by "McCullagh and Nelder" as discussed on page 13 of the application and added further modification by citing "humanly rating the descriptors" (Examiner's Answer, page 16, line 10) according to the "Lickert scale" as discussed on page 9 of the application. According to Wikipedia (also cited by the Examiner), the "Likert scale" is "the most widely used scale in survey research" by which respondents "specify their level of agreement to a statement" and examples of use of the scale appear on page 10 of the application. The "Likert scale" is not specifically related to "humanly rating the descriptors" or "adjusting the weightings for the parameters to find a set of weightings where each computed descriptor for each recording most closely matches perceptions reported for the recording by one or more human listeners" (claim 1, last 3 lines). It is submitted that the addition of this additional prior art does not overcome the arguments regarding Issue (4) in the Appeal Brief.

Issue (5)

the paragraph spanning pages 16-17 of the Examiner's Answer again cited the second paragraph on page 7 of Martin et al. and column 3, lines 35-67 of Blum et al. The failure of these portions of Martin et al. and Blum et al. to teach or support the assertions made by the Examiner were discussed above.

The only full paragraph on page 17 of the Examiner's Answer addressed the meaning of "identifier" in response to the arguments in the Appeal Brief related to claims 18 and 27 which recite "associating an identifier with each recording of a plurality of music recordings" (e.g., claim 18, line 3). Nothing in the only full paragraph on page 17 of the Examiner's Answer rebuts the argument in the Appeal Brief and above that the combination of Martin et al. and Blum et al. does not teach or suggest creating a database of computed difference numbers where "each computed difference is associated with the identifier for each of the two recordings from which the difference was computed" as recited in claims 18 and 27. Therefore, it is submitted that the arguments regarding Issue (5) were not overcome by the Examiner's Answer.

Issue (6)

In the paragraph spanning pages 17 and 18, the Examiner's Answer again cited the specification of the subject application. As noted above, this is improper since the claims do not contain means-plus-function elements.

Contrary to the oversimplification of the arguments in the Appeal Brief that "the distance searching of Blum is not the same as 'searching a database' as recited in the … claims" (Examiner's Answer, page 17, lines 20-21), the Appeal Brief argued that "searching a database containing computed difference numbers between the target recording and a plurality of other recordings for those recordings which have a small computed difference number from the target music recording" (claim 26, last 3 lines) was not taught or suggested by Martin et al. and Blum et al. because the combination of Martin et al. and Blum et al. does not disclose "a database containing computed difference numbers between the target recording and a plurality of other recordings for those recordings which have a small computed difference number from the target music recording" not because Blum et al. does not disclose searching a database of musical recordings. Therefore, it is submitted that the arguments regarding Issue (6) were not overcome by the Examiner's Answer.

Summary

For the reasons set forth above and in the Appeal Brief and the Responses filed during prosecution of the application, it is submitted that claims 1-20, 22-24, 26, 27, 29-31 and 33-43 patentably distinguish over the prior art cited in rejecting the claims. Thus, it is respectfully submitted that the Examiner's final rejection of the claims is without support and, therefore, erroneous. Accordingly, the Board of Patent Appeals and Interferences is respectfully urged to so find and to reverse the Examiner's final rejection.

If any fees are required in the filing of this Reply Brief, please charge same to our Deposit Account No. 19-3935.

Respectfully submitted,

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